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AUTHOR Strickler, Darryl J.
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ABSTRACT

The purposes of this study were to determine the effects of Minicourse 18 on the development of 27 specific teacher behaviors related to teaching reading decoding skills by a group of inservice and preservice teachers of primary grade children, and to determine the effects of the teacher training upon pupil performance in reading. Minicourse 18 was designed by the Far West Laboratory for Educational Research and Development to improve teacher effectiveness in aiding children in their acquisition of reading decoding skills. Fourteen inservice teachers and nineteen preservice teachers served as subjects. Seven inservice teachers and nine preservice teachers were trained with Minicourse 18, and the remaining seventeen subjects served as a control group. All of the subjects taught a twenty- to thirty-minute lesson on reading decoding skills to three pupils one week before and two weeks after the training of treatment panel teachers. Some of the findings indicated that training with Minicourse 18 contributed significantly to the development and refinement of behaviors related to teaching reading decoding skills. Also, training with Minicourse 18 appeared to have provided teachers with a more systematic approach to teaching reading decoding skills. (WR)

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Dr. Darryl J. Strickler
School of Education, Ed. 321
Indiana University
Bloomington, Indiana 47401

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Effects of Training with "Minicourse 18" on Inservice and Preservice Teacher Behavior and Pupil Performance

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Effects of Training with "Minicourse 18" on Inservice and Preservice Teacher Behavior and Pupil Performance

Darryl Strickler
Indiana University

Introduction

There is, at present, ample evidence of the need for increased teacher effectiveness in providing reading instruction. This need is particularly apparent when the percentage of children who fail to learn to read adequately in relation to their potential is considered. Additional indication of the necessity of increasing teacher effectiveness has also been provided by the findings of the Harvard-Carnegie Reading Studies, the First and Second Grade Cooperative Reading Studies, and by numerous reading educators who have explicitly stated this need.

Minicourse 18: "Teaching Reading as Decoding," the subject of the present investigation, was recently designed by the Far West Laboratory for Educational Research and Development to improve teacher effectiveness in aiding children in their acquisition of reading decoding skills. Materials included in the experiemental version of the Minicourse 18 which was used in this investigation consisted of a trainee's handbook, which contained pertinent research and information related to the course content; six, half-hour videotapes which presented instructional and model lessons related to teaching reading decoding skills; and diagnostic and instructional aids for teaching decoding skills. The course consisted of five instructional sequences and a review lesson. Within each sequence the trainee read the appropriate chapter of the trainee's handbook, then viewed

instructional and model lessons of the sequence. The trainee then planned and conducted a microteaching lesson to practice and refine the specific teacher behaviors dealt with in the sequence. The microteaching lessons were videotaped by the trainee and subsequently replayed for self-analysis purposes; following which the lesson was replanned and retaught to a different group of students, and again analyzed by the trainee. The above activities were repeated during each of the five instructional sequences of the course.

The research procedures employed in the investigation were designed to assess the effects of training with Minicourse 18 on the teaching behavior of two panels of inservice and preservice teachers. The effects of the training were also investigated in relation to pupil performance on reading decoding tasks.

Purpose

The purpose of the investigation was: (1) to study the effects of Minicourse 18 on the development of twenty-seven specific teacher behaviors related to teaching reading decoding skills[1] by a group of inservice and preservice teachers of primary grade children, and (2) to study the effects of the teacher training upon pupil performance in reading.

The effects of the training were studied by:

1. Comparing the pre- and post-course teaching behaviors related to teaching reading decoding skills of a panel of inservice and preservice teachers trained with Minicourse 18.

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[1]The twenty-seven teacher behaviors studied were identified through a review of literature pertaining to decoding in reading which was conducted by the Far West Laboratory. The training of teachers to use these behaviors--which are purported to be effective in building children's ability to employ reading decoding skills--is the major purpose of Minicourse 18. (See Appendix for a list of the twenty-seven specific teacher behaviors studied.)

2. Comparing the teaching behaviors related to teaching reading decoding skills of a panel of preservice teachers trained with Minicourse 18 with the teaching behaviors of a similar panel of preservice teachers not trained with Minicourse 18.

3. Comparing the teaching behaviors related to teaching reading decoding skills of a panel of inservice teachers trained with Minicourse 18 with the teaching behaviors of a similar panel of inservice teachers not trained with Minicourse 18.

4. Comparing the mean gain in performance on reading subtests of a standardized achievement test of pupils in the classes of a panel of inservice teachers trained with Minicourse 18 with the mean gain in the performance of pupils in the classes of a panel of inservice teachers not trained with Minicourse 18.

5. Comparing the mean gain in performance on a non-standardized test of reading decoding tasks of pupils in the classes of a panel of inservice teachers trained with Minicourse 18 with the mean gain in the performance of pupils in the classes of a panel of inservice teachers not trained with Minicourse 18.

6. Comparing the distribution of the post-test scores with the distribution of the pre-test scores on a reading subtest of a standardized achievement test of pupils in the classes of teachers trained with Minicourse 18.

Hypotheses

Six specific hypotheses were formulated for the investigation. Three of these hypotheses were related to teacher behavior and three were related to pupil performance.

It was hypothesized that:

H_1: The mean frequency of the use of twenty-seven specific behaviors related to teaching reading decoding skills by a panel of inservice and preservice teachers (N = 16) trained with Minicourse 18 as derived from the scoring of post-course criterion lesson videotapes, would differ significantly in the expected direction from the mean frequency of use of these behaviors in the pre-course lesson videotapes.

H_2: The frequency of treatment and non-treatment panel preservice (N = 19) teachers' use of twenty-seven specific behaviors related to teaching reading decoding skills in post-course criterion lesson videotapes, adjusted by covariance for differences in the frequency of use of these behaviors in pre-course lesson videotapes, would be correlated in the expected direction to the treatment--training with Minicourse 18.

H_3: The frequency of treatment and non-treatment panel inservice (N = 14) teachers' use of twenty-seven specific behaviors related to teaching reading decoding skills in post-course criterion lesson videotapes, adjusted by covariance for differences in the frequency of use of these behaviors in pre-course lesson videotapes, would be correlated in the expected direction to the treatment--training with Minicourse 18.

H_4: The covariance-adjusted post-test mean grade equivalent scores on the "Word Study Skills" and "Paragraph Meaning" subtests of the Stanford Achievement Test would be significantly greater for second and third grade pupils in the classes of inservice teachers trained with Minicourse 18 than the adjusted mean grade equivalent scores of second and third grade pupils in the classes of inservice teachers not trained with Minicourse 18.

H_5: The covariance-adjusted post-test mean scores on the reading decoding tasks of the Minicourse 18 Achievement Test would be significantly greater for pupils (N = 115) in the classes of inservice teachers trained with Minicourse 18 than the adjusted post-test mean scores of pupils (N = 115) in the classes of inservice teachers not trained with Minicourse 18.

H_6: The distribution of post-test scores on the "Word Study Skills" subtest of the Stanford Achievement Test of second and third grade pupils in the classes of inservice teachers trained with Minicourse 18 would demonstrate less positive skewness than the distribution of their post-test scores on the subtest.

Method

A non-equivalent control group design (quasi-experimental) was employed to investigate the six hypotheses. Fourteen inservice teachers of primary grade children and nineteen preservice teachers who were engaged in intern and student teaching experience at the time of the study served as subjects for the research. The treatment--training with Minicourse 18--was assigned to seven inservice teachers and nine preservice teachers. The remaining seventeen inservice and preservice teachers served as the source of control group data for the study of teacher behavior. While the teachers in the treatment panel were being trained with Minicourse 18, teachers in the non-treatment (control) panel received training in "open classroom" management techniques.

All thirty-three teacher subjects taught a twenty to thirty-minute lesson on reading decoding skills to three pupils one week before and two weeks after the training of treatment panel teachers. Both the content and sequence of the lessons was specified in advance. Pre- and post-course lessons were videotaped and subsequently analyzed, double blind, by eight trained raters to determine the frequency of teachers' use of twenty-seven specific behaviors related to teaching reading decoding skills.

The performance on reading decoding tasks of one hundred and fifteen, first, second, and third grade pupils in the classes of inservice teachers trained with Minicourse 18 was compared, by analysis of covariance, with the performance of an equal number of pupils in the classes of inservice teachers who did not receive the training. Pupils in the classes of inservice teachers in the treatment and non-treatment panels used the same basal reader series for reading instruction. However, only the teachers in the treatment panel had access to the training materials in Minicourse 18.

Parallel forms of the "Paragraph Meaning" and "Word Study Skills" subtests of the Stanford Achievement Test, Primary Battery I or II, were administered to second and third grade pupils two weeks before and four weeks after the training of treatment panel teachers. Equivalent forms of the Minicourse 18 Achievement Test, a forty-six item test of reading decoding tasks which was developed by the Far West Laboratory, were administered pre and post to all first, second and third grade pupils in the study (N = 230). The test-retest interval was fourteen weeks.

Results

Hypothesis One. Comparison of the pre- and post-course teaching behavior of the sixteen inservice and preservice teachers trained with Minicourse 18 indicated that the change in teaching behavior was in the direction expected for twenty-four of the twenty-seven behaviors rated. The *t*-test for correlated means was applied to the data to determine the significance of the difference between the mean frequency of treatment panel teachers' use of the twenty-seven behaviors in their pre- and post-course lessons. It was found that the amount of mean change was statistically significant ($p < .05$) for sixteen of the behaviors.

To aid the presentation and interpretation of the teacher behavior data, the twenty-seven behaviors were grouped into seven subsets of behaviors. (See Appendix) Each subset included behaviors appropriate to a particular teaching task. Significant changes were found for behaviors within each of the seven subsets, although the greatest consistency of change was noted in teaching behaviors which were designed to facilitate pupil transfer, or application, of decoding skills (Teaching for Tranfer), and in the reduction of teaching behaviors which tend to misrepresent the actual grapheme/phoneme correspondence of individual letters (Negative Behaviors).

Hypothesis Two and Three (Combined). The teaching behavior of the sixteen inservice and preservice teachers who participated in Minicourse 18 training was compared with the teaching behavior of the seventeen inservice and preservice teachers who did not receive the training. For this comparison, point biserial correlations between the treatment condition (training vs. no training) and covariance-adjusted post-course teaching behavior were

computed. Results of the analysis indicated that the frequency of teachers' use of twenty-five of the twenty-seven behaviors in their post-course lessons was associated with the treatment, i.e., the adjusted frequency of the use of twenty-five behaviors by teachers who had been trained with Minicourse 18 was consistently different, in the expected direction, from the behavior of teachers who did not receive the training.

Multiple point biserial correlations between the use of all of the behaviors in each of the seven subsets and the treatment condition ranged between .18 and .68. Comparison of the magnitudes of the multiple correlations for each subset of behaviors indicated that treatment panel teachers differed most from non-treatment panel teachers in their use of the behaviors related to teaching grapheme recognition, and in their decreased use of negative behaviors. A moderately strong association was also noted between the treatment condition and the use of the behaviors in the Contextual Clues, Grapheme/Phoneme Correspondence, and Response to Error subsets. For the Larger Letter Units and Teaching for Transfer subsets, a low association was found between treatment and post-course teaching behavior.

Hypothesis Two. The comparison of the teaching behavior of the two panels of preservice teachers indicated that post-course teaching behavior was associated with the treatment (Minicourse 18) for twenty-two of the twenty-seven behaviors rated. Multiple point biserial correlations for the seven behavior subsets ranged between .23 and .74. The magnitudes of the multiple correlations indicated that substantial differences existed between treatment and non-treatment panel teachers' use of the behaviors in four of the subsets. The use of the behaviors in the remaining three subsets did not appear to discriminate to a high degree between preservice teachers who had received the training and those who had not.

It was found that preservice teachers' use of the behaviors in each of the seven subsets was correlated to the treatment in the same order of magnitude as the use of the behaviors in each subset by inservice and preservice teachers combined.

Hypothesis Three. The adjusted post-course teaching behavior of the seven inservice teachers who had participated in the training with Minicourse 18 was compared with the teaching behavior of the seven inservice teachers who did not receive the training. The expected relationship between treatment and post-course teaching behavior was found for seventeen of the twenty-seven behaviors. The range of the seven multiple point biserial correlations was between .11 and .67. The strongest association with the treatment was found for the use of behaviors in the Response to Error and Grapheme Recognition subsets. The multiple correlations for the Negative Behaviors subset indicated that the training had a moderately strong effect upon treatment panel teachers' decreased use of teaching behaviors which distrot the grapheme/phoneme correspondence of individual letters.

Hypothesis Four. Multivariate analysis of multiple covariance of grade equivalent scores, with the pre-test performance on both Stanford subtests as the covariates, and adjusted post-test performance as the criterion, was employed to investigate between-group differences in pupil performance. A statistically significant ($p < .05$) difference indicated the superior performance of pupils in the classes of teachers trained with Minicourse 18. Univariate analysis of covariance indicated that between-group differences were significant beyond the .01 level for the "Word Study Skills"

subtest, while the differences in performance on the "Paragraph Meaning" subtest approached, but did not reach, statistical significance at the .05 level.

The adjusted criterion means for pupil performance on the Stanford subtests are presented in Table I below. Mean grade equivalent scores are shown.

TABLE I

ADJUSTED CRITERION MEANS: STANFORD ACHIEVEMENT SUBTESTS

	Treatment (N=92)	Non-Treatment (N=93)	Difference Mean	Difference S.D.
Paragraph Meaning	2.73	2.60	.13	.28
Word Study Skills	2.95	2.70	.25	.39

Hypothesis Five. Univariate analysis of covariance was used to compare the performance of treatment and non-treatment panel pupils on the Minicourse 18 Achievement Test. A statistically significant (.0001) difference was found; again indicating that pupils taught by teachers who had completed Minicourse 18 training made significantly greater gains in reading decoding ability. It was noted, however, that the superior gain of treatment panel pupils on the Minicourse test may have been partially attributed to greater familiarity with the tasks required by the test items.

Hypothesis Six. In order to assess the effects of the teacher training on the performance of high- and low-scoring pupils in the treatment panel, the distributions of their pre- and post-test grade equivalent scores on the Stanford "Word Study Skills" subtest were compared. It was found that the training appeared to benefit less able pupils most since the distribution of post-test scores exhibited less positive skewness and was more platykurtic. While relatively little change was noted, pre to post, in the performance of high-scoring pupils, a marked change was noted in the performance of pupils who had achieved a low grade equivalent score on the pre-test. It is probable that the instrument used to collect criterion data related to this hypothesis produced a ceiling effect because more able students had already mastered the decoding tasks being tested. However, the fact that less able students improved significantly is seen as an important result of the training of teachers.

Figure 1 graphically represents the distributions of pre- and post-test grade equivalent scores of second and third grade pupils in the treatment panel. (N = 92).

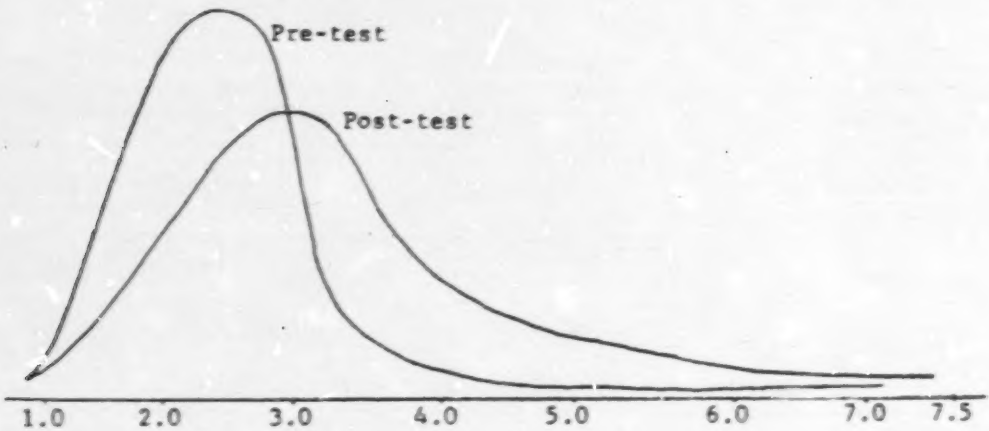

Figure 1. Pre- and post-test distribution of second and third grade treatment panel pupils' (N = 92) grade equivalent scores on the Stanford "Word Study Skills" subtest.

Discussion

At the present time there exists a growing concern for the failure of so many children to learn to read adequately in relation to their potential, as well as an increasing awareness of the crucial role the elementary school teacher plays in aiding children's development of reading proficiency. While the training of teachers with Minicourse 18 will certainly not solve all of the problems of reading deficiency among children, the results of the present investigation appear to indicate the potential contribution of Minicourse 18 for increasing teachers' effectiveness in teaching reading decoding skills. The results of the investigation also suggest that the training of teachers with Minicourse 18 may result in significant pupil growth in reading decoding skill.

The findings of the teacher behavior phase of the study indicate that, for the panels of teachers studied, training with Minicourse 18 was a significant contributor to the development and refinement of behaviors related to teaching reading decoding skills. The training with Minicourse 18 also appeared to have provided teachers with a more systematic approach to teaching reading decoding skills. Because the training was focused upon the development of specific teaching behaviors, teachers at different grade levels, using different instructional materials, were apparently able to adapt the teaching behaviors learned in Minicourse 18 to their individual teaching situation.

The finding that the performance on reading decoding tasks of pupils in the classes of inservice teachers trained with Minicourse 18 was superior

to the performance of pupils in the classes of inservice teachers who did not receive the training is viewed as a significant result. Particularly if similar results are obtained from the study of other populations of teachers and pupils, this finding could indicate that the training and subsequent use of the teaching behaviors included in Minicourse 18 by primary grade teachers results in significant pupil growth in reading decoding skill.

Although it was not the purpose of this investigation to correlate gains in pupil decoding ability directly to the use of specific teacher behaviors, further research with Minicourse 18 might be directed toward the identification of several specific teacher behaviors which result in the greatest gains in pupils' decoding ability.

APPENDIX

TEACHER BEHAVIORS RELATED TO TEACHING READING DECODING SKILLS

TEACHER BEHAVIORS RELATED TO TEACHING READING DECODING SKILLS[1]

I. GRAPHEME RECOGNITION

1. Ask pupil to match letter with same letter
2. Ask pupil to describe how two letters differ
3. Ask pupil to find same letter in word
4. Ask pupil to tell where letter is in word

II. GRAPHEME/PHONEME CORRESPONDENCE

5. Pronounce and show word to illustrate correspondence
6. Write and pronounce word pupil suggested
7. Present word examples for more than one sound of letter

III. LARGER LETTER UNITS

8. Present similar spelling pattern words together
9. Ask pupil to identify similar spelling pattern
10. Present contrasting spelling pattern words together
11. Ask pupil to identify contrasting spelling pattern
12. Present words with affixes sequentially
13. Discuss how affix changes word meaning

IV. CONTEXTUAL CLUES

14. Ask pupil to arrange words into sentence
15. Ask or tell about homograph duality

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[1]Behaviors identified through research by the Far West Laboratory.

V. TEACHING FOR TRANSFER

16. Ask why of how pupil knew

17. Provide new word differing from previously presented word in only one letter

18. Provide new word containing pattern resembling previously presented word

VI. RESPONSE TO ERROR

19. Return to previously presented word

20. Write pupil response; compare with target word

*21. Ignore error

*22. Move to another pupil for answer

*23. Provide answer without allowing continued pupil trial

VII. NEGATIVE BEHAVIORS

*24. Say "Sound letter makes", or "Sound letter says"

*25. Pronounce isolated letter sound

*26. Ask pupil to pronounce isolated letter sound

*27. Pronounce word with unnatural stress

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*Behaviors expected to decrease in frequency as a result of training.